APPENDIX B:

PROJECTED POPULATION, EMPLOYMENT, LAND USES, REVENUES AND COSTS BY MICRO-AREA

Base-Line Land Use, Population and Employment Estimates: Harrisburg Micro-Area

1. Land Use

Land use for each micro-area is compiled into a total for each use by feet and acres. Building square feet is also totaled by use. Both of these figures come from 2003 Harris County Appraisal District (HCAD) data.

2. Projected Population and Employment by Micro-Area

The methodology used to create the projections for each micro-area considered a number of factors including land use, population, growth trends and development capacity. The terms and assumptions described below apply to both micro-areas.

The population for each micro-area comes from 2000 Census block group level data. Current employment estimates are from 2003 ABI business data, which was obtained from Houston-Galveston Area Council (H-GAC). This data contains addresses for businesses with a number range of employees at the site. The midpoint of the employee range was used to estimate the number of employees at each business. Businesses with addresses inside the micro-area were selected and the employee estimates totaled. Population and employment growth is calculated by applying a constant amount of growth to each year within the forecasted 25-year time frame.

Scenario 1

In both micro-areas, Scenario 1 assumes that growth in each micro-area will continue as predicted in H-GAC's moderate growth scenario. H-GAC provides a moderate and an aggressive estimate for both population growth and job growth. The only assumption that changes between the moderate and aggressive scenarios is that of an increase in energy sector activity. This corresponds to a 12% increase in professional sector employment and a 25% increase in the mining sector. For Scenario 1, H-GAC's moderate growth rate was used.

These H-GAC estimates were developed using a geographic boundary called Traffic Analysis Zones (TAZ). These TAZs do not correspond with the boundaries identified with the micro-areas. In order to apply these estimates to the micro-area, an average of all the TAZs that are substantially represented in the micro-area was calculated. This total growth rate was then translated into a yearly growth rate for the micro-area. The H-GAC population growth rate was applied to growth in residential units and the H-GAC employment growth rate was applied to the growth in other employment related land uses.

Scenario 2 – Harrisburg and Wayside

For both micro-areas Scenario 2 assumes that a substantial intervention would occur to change development patterns and increase growth in the micro-areas. These calculations also assume a constant growth applied equally each year over the 25-year timeframe. The methodology for calculating growth rates in each micro-area is different; each methodology is outlined in a separate section.

3. Floor Area Ratio

The Floor Area Ratio (FAR) shown in Allocation of Vacant Land table represents the amount of space on a parcel of land that is taken up by building structure. This is a function of many different influences including land use, development type and density, parking requirements, etc. These FARs were calculated by averaging total parcel square feet by total building square feet for each land use. Multiplying the FAR by the total of the Re-Developable land and the Undeveloped Land (called Developable Land in the table) creates an estimate for the total amount of building square feet available. This number, provided for each land use where it is applicable, represents the total development possible based on previously outlined assumptions.

Basing this analysis on current FARs, assumes that any additional development would occur at current density levels. Increased development frequently brings increasing FARs (greater density), which would allow for more development than forecasted in Scenario 2.

Current Land Use

Future land development will not necessarily continue in the same proportion of uses as currently exists. For example, in the Harrisburg Micro-Area, the transportation and utilities grid is largely complete. Therefore, future development is assumed to require no significant increase in land for transportation and utilities. These figures have been set to better reflect the allocation of uses that new development is most likely to exhibit.

For purposes of this build-out/growth analysis, all Undeveloped Land is presumed to be developable. Because of location, underutilization or other factors, redevelopment of existing uses will occur. To account for this a "redevelopment ratio" based on current trends and professional judgment is applied to existing land use totals to arrive at an additional quantity of re-developable land.

Growth Scenarios

Because of fundamental differences between the types of growth anticipated, the two micro-areas different methodologies were used to calculate the growth rates applied in Scenario 2.

1. Harrisburg Micro-Area

Scenario 1

In Scenario 1, the population for the Harrisburg Micro-Area is projected to increase by 0.96% each year and employment is projected to increase by 1.3 % each year. This corresponds to a 2,226-unit increase in single-family residences and a 2,326-unit increase in multi-family residences over 25 years. Employment is projected to increase at 1.3% or 27,172 employees.

Scenario 2

Scenario 2 presumes positive growth and therefore imputes a positive growth rate commensurate with established natural trends and projected growth factor enhancements. A composite and integrated growth rate calculation is based on Population Growth Projections (City of Houston and H-GAC rates); Economic Activity Growth projections (Market Study Sources); Land Use Development Growth projections imputed from major factor enhancement prototype impact activity rates (Rail / Main Street Corridor); and other social dynamics modifying growth impact projections from area demand generators (Proximity to CBD, Beltway 8 – long term, Ship Channel Owner/User warehousing distribution logistics, access to interstate highways, improvements to Buffalo Bayou and governmental designations of Enterprise Zones). The composite rate is further reflected against City and regionally assigned rates for a determination of reasonability. In order to determine an appropriate growth rate a "multiplicity factor" has been developed to allow for an accurate comparison between various factors impacting growth in the area.

The results show a much stronger growth brought about by intervention that increases the current rate of development. In this scenario, both the population and employment for the Harrisburg Micro-Area increases by 2.97 % of the base each year. This corresponds to a 6,911 unit increase in single-family residences and a 7,223 unit increase in multi-family residences over 25 years. Employment is assumed to increase at the same rate as population, which leads to an additional 15,229 workers over 25 years (See table for additional square feet of space in each employment category).

"Multiplicity Factor" = How much above or below an established benchmark growth rate the Micro-Areas are expected to perform under Scenario 2 conditions.

Population Growth Rates (natural trends)
City of Houston derivations from Study Areas 4 and 5 (average) 1990 - 2000
2.5% in Study Areas as compared to:

Midtown	4.8%
Southwest	2.8%
Citywide	1.9%

*Multiplicity Factor: 1

<u>H-GAC assigned rates for 2025 projections (larger area geography)</u>
0.96% in Study Areas per year
As compared to:

Midtown	1.3%
Southwest	1.4%
Citywide (TAZs that touch COH)	2.2%

* Multiplicity factor: 1.5

Economic Activity Growth Rates (specific study summaries)

Industrial space absorption rate: 0.87% per year

Houston Industrial Market Study, Second Quarter, 2003

As compared to:

Midtown/CBD: .40%

Southwest: .61%

* Multiplicity factor: 1.3

Harrisburg Market Analysis, Second Quarter, 2003

0.87% per year

As compared to none

Office space net absorption rate

2003 Houston Office Outlook:

4.4% per year

As compared to

Southwest: 2.8%

* Multiplicity factor 1

Land Use Development Growth Rates (major factor impact derivation)

Overall 2020 growth derived from rail — P&D Study for Main Street

3.1% (average of 3.4%, population; 2.8%)

The overall growth predicted due to rail (3.1%) has been adjusted down 70% to better reflect the potential impact of rail on Harrisburg in comparison to the Main Street Corridor. This number should be considered in relation to the final adjusted growth rate derived from the multiplicity factors.

Estimated growth for Harrisburg with rail = 2.2%

** Average multiplicity factor = 1.2%

Calculation approach

1. Take base as the average of 2.5% (Population) and 2.21% (Development) = 2.35%

2. Multiply by the average of the multiplicity factors, i.e. 2.35% x 1.2% = 2.82%

3. Adjust further by any other significant growth factor enhancer effects as plausible.

a.	Proximity to CBD	– add 0.05%
b.	Impact of Bayou Improvements	– add 0.07%
c.	Impact of TIRZ	– add 0.03%
	Total Adjustment	0.15%

4. Final Growth Rate: 2.82% + 0.15% = 2.97%
(Applied to population and employment growth for Harrisburg micro-area).

2. Wayside Micro-Area

Future land development will not necessarily continue in the same proportion of uses as currently exists. The allocation of available land has been set to better reflect the allocation of uses that new development is most likely to exhibit.

For purposes of this build-out/growth analysis, all Undeveloped Land is presumed to be developable. Because of location, underutilization or other factors, redevelopment of existing uses will occur. To account for this a "redevelopment ratio" based on current trends and professional judgment is applied to existing land use totals to arrive at an additional quantity of re-developable land.

Scenario 1

In Scenario 1 the population for the Wayside Micro-Area increases by 0.89% each year and the employment increases 2.35% each year. This corresponds to a 966 unit increase in single-family residences and a 48 unit increase in multi family residences over 25 years. Employment increases more than population – 2.35% of the base per year over 25 years for a total of 4,186 workers.

Scenario 2

Scenario 2 represents the results of much stronger growth brought about by intervention that increases the current rate of development. In this scenario, the population for the Wayside Micro-Area increases 2.5% each year and the employment increases 2.5% each year. This corresponds to a 3,428 unit increase in single-family residences and a 170 unit increase in multi-family residences over 25 years. Employment increases by 2.5% of the base each year to add a total of 4,453 jobs over 25 years (See table for

additional square feet of space in each employment category).

Wayside Growth Rate Calculation Methodology

Land use, residential development and population are calculated for Wayside with a projection extending to 2025 from a 2000 base year. Projections were based on a scenario predicating construction of a master planned community in the existing area utilizing selected tracts of land.

To determine the growth rate for Scenario 2, we identified sufficient vacant land, (476 acres) for a large master planned community. We calculated the average number of persons per household and multiplied it by the total number of lots available for development.

Density requirements for New Residential Development are based on City Ordinances. Our calculations formulated the square footage required of a typical Lot size including roads.

Standard Lot Size = 5,000 sq. feet
* Based on a standard lot of 50' x 100'

Standard Lot Size w/ Roads = 6,250 sq. feet
* Based on a standard lot 50' x 100' w/50 ft frontage road, utilizing 25 ft for each home.

1. Divide 43,560 square feet (1 acre) 6, 250 square feet, which is the average lot size of a single-family home.
   a. 1 Acre
      43,560 sq. ft./acre
   b. Average Lot Size
      6,250 sq. ft.
   Total Lots Per Acre = 7 Lots / acre

Based on our scenario, there are 476 acres of potential residential new development land available. In order to show how many lots were required to build out on the development the total lots per acre (7) was divided by the total acreage (476).

   a. Total Lots Per Acre: 7 Lots
   b. Number of Acres for Potential Development: 476 Acres

Total # of Lots for New Development : 3,332 Lots

Population:
Population projections are based on the Total # of Lots for New Development and calculated by averaging the number of persons per household and assuming one household per lot. Multiplying the Average Persons per household by the Total Number of Lots for New Development provides the population of the proposed development at full build out in 25 years.

   a. Average Persons Per Household: 3.1
   b. Total # of Lots for New Development: 3,332
   c. Total # of Population at build out: 10,329

Final Growth Rate:
With a total projected population increase of 10,329 it is possible to calculate a growth rate. The steps used to calculate the growth rate are as follows:

1. Divide Build Out Population by the Base Population to achieve the total increase. Dividing the total increase by the 25-year growth period provides the yearly increase.

2. Figures used in calculations:

   a. Build out Population: 10,329
   b. Base Population: 16,268
   c. 25 Year Increase in Population: .634
   d. Build out Time Frame: 25
   e. Growth Rate: 2.5% per Year